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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,303	08/04/2000	Lawrence W. Yonge III	04838-053001	1673
26161	7590	06/01/2006	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			RYMAN, DANIEL J	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/632,303

Applicant(s)

YONGE ET AL.

Examiner

Daniel J. Ryman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-8, 18-20, 24-27 and 29 is/are rejected.
- 7) ☒ Claim(s) 9-17, 21, 22 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/16/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 2-8, 18-20, 24-27, and 29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 19, 24-27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Zijderhand (USPN 5,629,942).

4. Regarding claim 24, Applicant admits as prior art in a network of stations interconnected by a transmission medium, a method of carrier sense multiple access (CSMA) communication in which a plurality of stations desiring to transmit a frame may contend for access to the medium during a contention period (see CSMA-CA protocol on p. 1, line 17-28). Applicant does not admit as prior art including a contention control field in at least some transmitted frames, the contention control field including contention control information indicating whether stations have permission to contend during a following contention period; having a first station establish a contention-free access interval for transmission of a plurality of frames, wherein the contention-free access interval is established by having the first station contend for access during a contention period and successfully gain access to the medium; transmitting the plurality of frames with contention control information that informs at least some other stations that they are

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not permitted to contend during contention periods within the contention-free access interval; having at least a second station that receives the transmitted frames determine from the contention control information whether the second station is permitted to contend during a contention period within the contention-free access interval.

Zijderhand teaches, in a contention-based system (col. 1, lines 55-64), including a contention control field ("time slot reservation bit") in at least some transmitted frames, the contention control field including contention control information indicating whether stations have permission to contend during a following contention period (col. 8, lines 33-42 where a value of 1 indicates that a station has reserved the next time slot whereas a value of 0 indicates that any station may contend for the next time slot); having a first station establish a contention-free access interval (reserve next time slot) for transmission of a plurality of frames (col. 8, lines 33-42 where the sub-station is permitted to keep reserving time slots until it has no more information to send), wherein the contention-free access interval is established by: having the first station (sub-station) contend for access during a contention period (vacant time slot) and successfully gain access to the medium (col. 5, lines 40-53 where the substation will only contend for access during vacant timeslots); transmitting the plurality of frames with contention control information (time slot reservation bit) that informs at least some other stations that they are not permitted to contend during contention periods within the contention-free access interval (the next time slot is reserved) (col. 8, lines 33-42). Zijderhand does this in order to increase the channel throughput (col. 2, lines 50-52).

In addition, Zijderhand does not expressly disclose having at least a second station that receives the transmitted frames determine from the contention control information whether the

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second station is permitted to contend during a contention period within the contention-free access interval. Rather, Zijderhand discloses that the main station is the ultimate destination such that the sub-station transmits the time slot reservation bit to the main station, which then retransmits this reservation information to the other stations (col. 6, lines 11-26 and 52-56). However, AAPA discloses that in CSMA, all other stations, rather than only a “main station,” receives each message transmitted by a particular station (p. 1, line 17-28). Therefore, in CSMA, there would be at least a second station that receives each message transmitted by a particular station.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ the slot reservation system of Zijderhand in the CSMA system of AAPA in order to increase the throughput of the CSMA system. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, in a CSMA system, a contention control field in at least some transmitted frames, the contention control field including contention control information indicating whether stations have permission to contend during a following contention period; to have a first station establish a contention-free access interval for transmission of a plurality of frames, wherein the contention-free access interval is established by having the first station contend for access during a contention period and successfully gain access to the medium; to transmit the plurality of frames with contention control information that informs at least some other stations that they are not permitted to contend during contention periods within the contention-free access interval; and to have at least a second station that receives the transmitted frames determine from the contention control information whether the

second station is permitted to contend during a contention period within the contention-free access interval.

5. Regarding claim 2, AAPA in view of Zijderhand suggests that if the contention control information indicates a contention-free access, determining if a channel access priority level associated with the frame to be transmitted by the second station is higher than a channel access priority level associated with a last transmitted frame. Simply, AAPA in view of Zijderhand discloses that if the contention control information indicates a contention-free access, a high priority message (category III messages) associated with the frame to be transmitted by the second station is higher will be transmitted regardless of whether the time slot has been reserved (Zijderhand: col. 9, lines 36-46 and col. 10, lines 11-22). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to determine if a channel access priority level associated with the frame to be transmitted by the second station is higher than a channel access priority level associated with a last transmitted frame when the contention control information indicates a contention-free access in order to permit a high priority message to preempt a low priority message.

6. Regarding claim 19, AAPA in view of Zijderhand discloses that the contention control information is a flag that, when set, indicates contention-free status (Zijderhand: col. 8, lines 32-42).

7. Regarding claim 25, AAPA in view of Zijderhand discloses that the first station transmits all of the plurality of frames (Zijderhand: col. 8, lines 32-42).

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8. Regarding claim 26, AAPA in view of Zijderhand discloses that the contention control information that informs other stations not to contend during the contention-free access interval appears in all but the last of the plurality of transmitted frames (Zijderhand: col. 8, lines 32-42).

9. Regarding claim 27, AAPA in view of Zijderhand discloses that contending during a contention period comprises: having stations that are contending listen during a listening period before initiating transmission, wherein the listening period is generally different for different stations, and having a station begin transmitting the frame if activity from other stations is not detected during the listening period (AAPA: p. 1, line 17-28).

10. Regarding claim 29, AAPA in view of Zijderhand discloses that the method of CSMA communication comprises CSMA/CA communication (AAPA: p. 1, line 17-28).

11. Claims 3-8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Zijderhand (USPN 5,629,942) as applied to claim 2 above, and further in view of Huang et al. (USPN 4,663,757), of record.

12. Regarding claim 3, AAPA in view of Zijderhand does not expressly disclose, if the contention control information indicates a contention-free status and the channel access priority level associated with the frame to be transmitted is determined to be higher than the channel access priority level of the last transmitted frame, or the contention control information does not indicate a contention-free status, detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted. Rather, AAPA in view of Zijderhand discloses that the stations will contend for access (Zijderhand: col. 10, lines 32-42). Huang teaches, in a system CSMA system, detecting whether any station in the network of

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stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted (Huang: col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49 where, if long packets are contending for access, it is determined whether any short packets are awaiting transmission such that the short packets will preempt the long packets). It is implicit that in Huang's network, a high priority packet is not delayed while contending for access with lower priority packets. As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to detect whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted if the contention control information indicates a contention-free status and the channel access priority level associated with the frame to be transmitted is determined to be higher than the channel access priority level of the last transmitted frame, or the contention control information does not indicate a contention-free status in order to eliminate the need for high priority packets to be delayed while contending with lower priority packets.

13. Regarding claim 4, AAPA in view of Zijderhand in further view of Huang discloses deferring contention for access to the transmission medium to any such station intending to contend for access at the higher channel access priority level (Huang: col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49 where long packets are deferred if a short packet is awaiting transmission).

14. Regarding claim 5, AAPA in view of Zijderhand in further view of Huang discloses contending for access to the medium during the next contention period if no higher channel

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access priority level is detected (Huang: col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49 where long packets will contend for access if there are no awaiting short packets).

15. Regarding claim 6, AAPA in view of Zijderhand in further view of Huang suggests signaling an intention to contend at the associated channel access priority level to other stations prior to the contention period, where Zijderhand discloses signaling to other stations prior to a contention period contention information (col. 8, lines 33-42) and Huang teaches using a priority access level to determine the eligibility of a station to contend in a period (col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to signal an intention to contend at the associated channel access priority level to other stations prior to the contention period in order to permit stations to determine prior to a contention period which stations are permitted to contend.

16. Regarding claim 7, AAPA in view of Zijderhand in further view of Huang discloses establishing a delay period corresponding to a random backoff time (Huang: col. 2, line 57-col. 3, line 19 where some of the colliding stations will transmit during the first subset and some will transmit during the second subset such that the actual delay from the collision for a particular unit is random); and monitoring the transmission medium for activity for the duration of the delay period (Huang: col. 2, line 57-col. 3, line 19 where stations determine whether or not a communication channel is in use).

17. Regarding claim 8, AAPA in view of Zijderhand in further view of Huang discloses transmitting the frame if activity is not detected during the monitoring (Huang: col. 2, line 57-col. 3, line 19).

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18. Regarding claim 18, AAPA in view of Zijderhand suggests that that the contention control information is observable by substantially all of the stations (AAPA: p. 1, line 17-28 and Zijderhand: col. 6, lines 11-26 and 52-56, where AAPA disclose that all information transmitted on the medium is received by all other stations and Zijderhand discloses that the contention control information is used by the other stations).

However, AAPA in view of Zijderhand does not expressly disclose that the channel access priority level is observable by substantially all of the stations. (Huang: col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49 and Ulug: col. 2, lines 20-37 and col. 2, lines 48-59). Huang teaches, in a system CSMA system, detecting whether any station in the network of stations intends to contend for access to the medium at a channel access priority level that is higher than the channel access priority level associated with the frame to be transmitted (Huang: col. 5, line 66-col. 6, line 21 and col. 6, lines 28-49 where, if long packets are contending for access, it is determined whether any short packets are awaiting transmission such that the short packets will preempt the long packets). It is implicit that in Huang's network, a high priority packet is not delayed while contending for access with lower priority packets, whereas such packets are delayed in Zijderhand (col. 10, lines 32-42). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to detect whether any station in the network of stations intends to contend for access to make the channel access priority level observable by substantially all of the stations in order to eliminate the need for high priority packets to be delayed while contending with lower priority packets.

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19. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Zijderhand (USPN 5,629,942) as applied to claim 1, and further in view of Karner (PG Pub 2001/0048692), of record.

20. Regarding claim 20, AAPA in view of Zijderhand fails to expressly disclose that the transmission medium is a power line. Karner discloses a power line network that uses a priority method for medium access control (paragraph 15) where it is implicit that this allows power lines to be used as a communication network. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the contention resolution system of AAPA in view of Zijderhand on a power line in order to permit power lines to be used as a communication network.

Allowable Subject Matter

21. Claims 9-17, 21, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest detecting, in a priority resolution period immediately prior to the contention period, signaling indicating a channel access priority level of a frame to be transmitted by the at least one other station.

22. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest that stations are without the capability to listen for transmissions from other stations while they are transmitting.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Ryman
Examiner
Art Unit 2616

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